Historical Archaeology at Ephrata Cloister

A Report on 1995 Investigations

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PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

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Acknowledgments

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Because the Ephrata Cloister Archaeology Project is structured as an archaeological field school in which a portion of tuition fees contribute to the project budget, I would be remiss if I did not credit those students who invested in an applied learning experience outside of the classroom. They are Angela Shuck, Denise Knisely, Dale Dodds, Tara Sabo, Anne Goldstein, and Morgan Wordley.

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Gratitude is also extended to Ephrata Cloister staff who helped with the project -- seasonal employees Beth Rump and Patrick Armour, summer intern Emily Breon, and Scholar-in-Residence Jeff Bach. Jeff willingly shared his considerable knowledge of Cloister theology and philosophy, permitting each of us to frame and refine our understanding of Ephrata's recorded history and archaeological discoveries.

During one of the most uncomfortable summers in recent years, twenty-two volunteers contributed 525 hours to help discover the Cloister's past. Their good company and labor of love made it possible to complete our work on schedule. Many thanks to all, who are too numerous to list.

Finally, I thank Anita Blackaby, Harold Myers, Lisa Lauria, Beth Rump, and William Sisson for reviewing draft versions of this booklet and offering constructive comments. I, of course, assume full responsibility for any errors which might appear in graphics, text, or interpretation offered in this report.

Stephen G. Warfel
April 16, 1996

Introduction

History and Archaeology fascinate young and old alike, for each provides a unique view into the past. History preserves details of bygone events as perceived by its compilers. Archaeology probes the material world, often considered too mundane to be worthy of written description. Sometimes complementary and at other times contradictory, neither record of past behavior is free of error. Written texts reflect their authors' prejudices, whereas the archaeological record may be flawed by disturbance and poor preservation. Only when the two disciplines are considered in tandem, as in Historical Archaeology, is the clearest possible interpretation of past activity achieved.

The Ephrata Cloister Archaeology Project draws on a rich documentary base compiled since the 18th-century, when two Brothers published the first history of this German Pietist community (see Lamech and Agrippa 1786). Because it is so accessible, the historical record has always been the basis for Ephrata Cloister's interpretation. Since 1993, however, systematic archaeological exploration of below-ground remains, designed to identify the location of historic-period structures and better understand distinctive lifestyles of community members, and re-examination of site histories have unearthed new information upon which a revised interpretation is being developed. One of the outcomes of the fledgling project is an awareness of how romanticized the site's history has become. Some historians, particularly those writing in the 19th-century, portrayed community members to be models of obedience. Yet, discovery of unexpected artifacts, such as butchered animal bones, ceramic vessels with initials scratched on their bottoms, and ornamental teawares, demonstrate that not all successfully complied with rigid codes of conduct imposed to restrict diet, possession of private property, and participation in "worldly" customs. Because the archaeological record is an unintentional account of past behavior -- no conscious effort is made to influence how future generations will interpret their actions when former peoples cast out the refuse that archaeologists eventually discover, record, identify, clean, catalog, and reconstruct -- we might anticipate occasional disagreement between what is found in the ground and what has been recorded. Yet, discrepancies discovered to date are greater than those customarily encountered on 18th-century sites. The reasons for this are several.

Ephrata Cloister was a religious commune, founded on distinctive ideological principles which required drastic abandonment of traditional lifestyles. Throughout the written record ideals are espoused, which if observed, were believed to result in spiritual cleansing and transformation . Success of the community as portrayed by members to the outside world required description of behavior and activity consistent with stated beliefs. It is this portrayal of the ideal life which has become the Ephrata story. Who would not be in awe of ordinary beings capable of adopting and sustaining such an ascetic lifestyle, all in the name of God? But, human frailties and deviation from ideals which receive only occasional note in the written record compose another important dimension of the community's history. It is this other aspect of the Cloister story which has become more evident in the assemblage of every-day objects found in the ground.

The present report describes the investigation of an 18th-century community trash deposit, first discovered in 1988 (Warfel 1990:36-49), defined by remote sensing in 1993 (Bechtel 1995: 12), and partially excavated in 1994 (Warfel 1995). Located beneath a grassy expanse of Cloister lawn north of the Print Shop garden (see Figure 1), the archaeological feature (soil disturbance) was determined by ground penetrating radar to be quite large and possess a "tail-like" appendage. These traits initially raised suspicion that the feature may be the remains of a com-

munal structure, since such structures at the Cloister are massive and have at least one subsurface drain. Excavations in 1994, however, revealed that the deposit consists of a borrow pit from which clay was dug for use in German half-timber and log construction on the property. After use as a borrow pit, the sizeable hole (in excess of 3,375 cu.ft.) was in-filled with refuse. And, indeed, the remains of a large structure, consisting of two broad limestone foundation footings were found constructed over the filled pit. Ceramic artifacts recovered from below the footings are primarily red earthenware types and, although not datable *per se*, exhibit 17th- and early 18th-century traits. Due to the coarse nature of soils overlying the footings and the possibility of artifact migration through the soil profile, a reliable date for when the structure was demolished could not be estimated at the close of the 1994 excavation season.

Because the 1994 dig only sampled the deposit and, yet, recovered such an important collection of early community artifacts, including nine reconstructed vessels and personally inscribed ceramics, continued investigation was undertaken during the 1995 field season. More complete definition of the discovered structure and interpretation of its role in the community and village plan was also required to meet project goals. Since no written record of a building at this location exists, archaeological investigation holds the key to its identification.

As you will learn, information collected during the 1995 excavation season has contributed vastly to interpretation of structural remains and soil layers observed in 1994. Likewise, questions raised by the present project provide problem-orientation and focus for planned 1996 investigations.

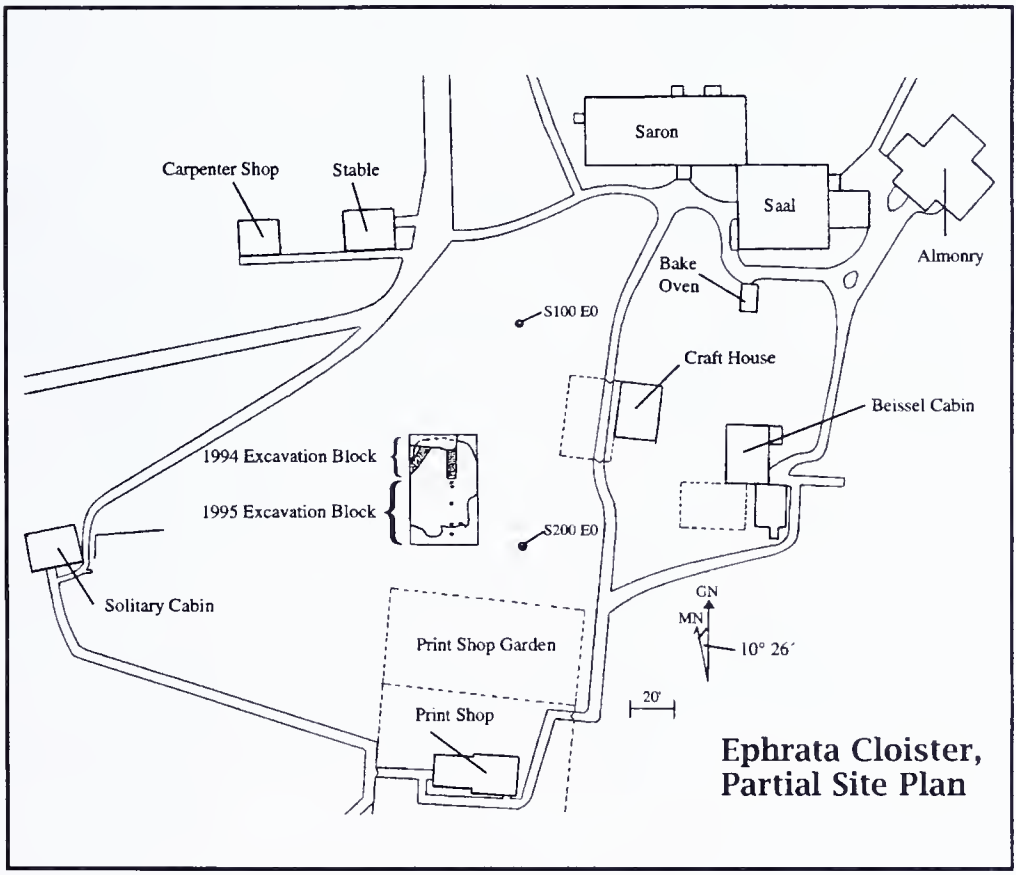


Figure 1. Partial site plan depicting location of investigation site.

Methods of Investigation

Methods used in the 1995 dig were comparable to those employed the preceding year (see Warfel 1995:3). A grid consisting of thirty-six five-foot-square units, extending from the S170 grid line to the S200 grid line (Figure 2), was established over the 1988 test trench location (now the fire suppression systems trench) and adjoining the 1994 excavation block, which extended from the S150 to the S170 grid line. Horizontal measurements of discovered objects and soil disturbances were made with reference to grid coordinates; the southwest grid coordinate of each square was selected as the designator for test units (also referred to as test pits). A bench mark of known elevation (315') was re-established on a concrete monument at S200 E0 and used as reference for vertical measurement of below-ground finds.

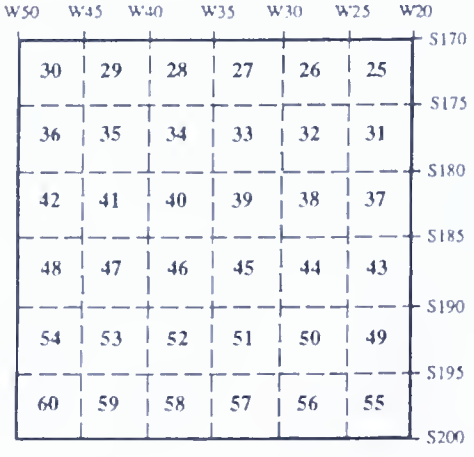
Turf was removed with sod shovels and carefully inspected for artifacts before placement on the spoil pile. Distinct soil layers were then scraped and removed with sharpened masons' trowels and miniature picks. Site Level 1 (modern top soil), 2/3 (a mid-20th-century fill level), and 4 (a buried plow zone/original land surface), distinguished by color and texture, were independently excavated. Investigation of the underlying trash pit, previously designated Feature 10, was conducted in a similar manner, but with one important difference. Level 1 of the feature was removed in three-inch increments.

More precise dating of the fill layer, made possible by the removal of soil increments, was necessary to interpret when the structure, represented by stone footings, was built and eventually razed. Analysis of 1994 data revealed that several early 19th-century artifacts were present in the first layer of Feature 10. Because the soil level was removed as a unit, a common practice in Historical Archaeology, it could not be determined if these artifacts were located only in the top of the layer, possibly because of downward migration and the influence of the overlying plow zone, or were mixed throughout. If mixed throughout, a date calculated for when the deposit was closed demanded reconsideration.

Three-inch wooden pegs were driven into the top of Feature 10, Level 1 (Figure 3). Excavation proceeded with small handtools until the pegs were completely exposed. All artifacts from the initial arbitrary level were designated Feature 10, Level 1, 0"-3." The same procedure continued until Level 1 was entirely excavated. In some test pits a depth of 15 inches was reached before encountering the next visually distinct soil layer.

All soils were screened through 1/4" hardware cloth. Artifacts were collected by layer and/or feature within five-foot grid units. Furthermore, a three-liter container of unscreened soil was collected from the northwest and southeast corners of each soil layer (including three-inch increments in Feature 10, Level 1) within each test pit for the purpose of flotation. Flotation, a specialized technique employed to recover preserved botanical evidence, such as seeds and nuts, was

Key to 1995 Test Pit Designations



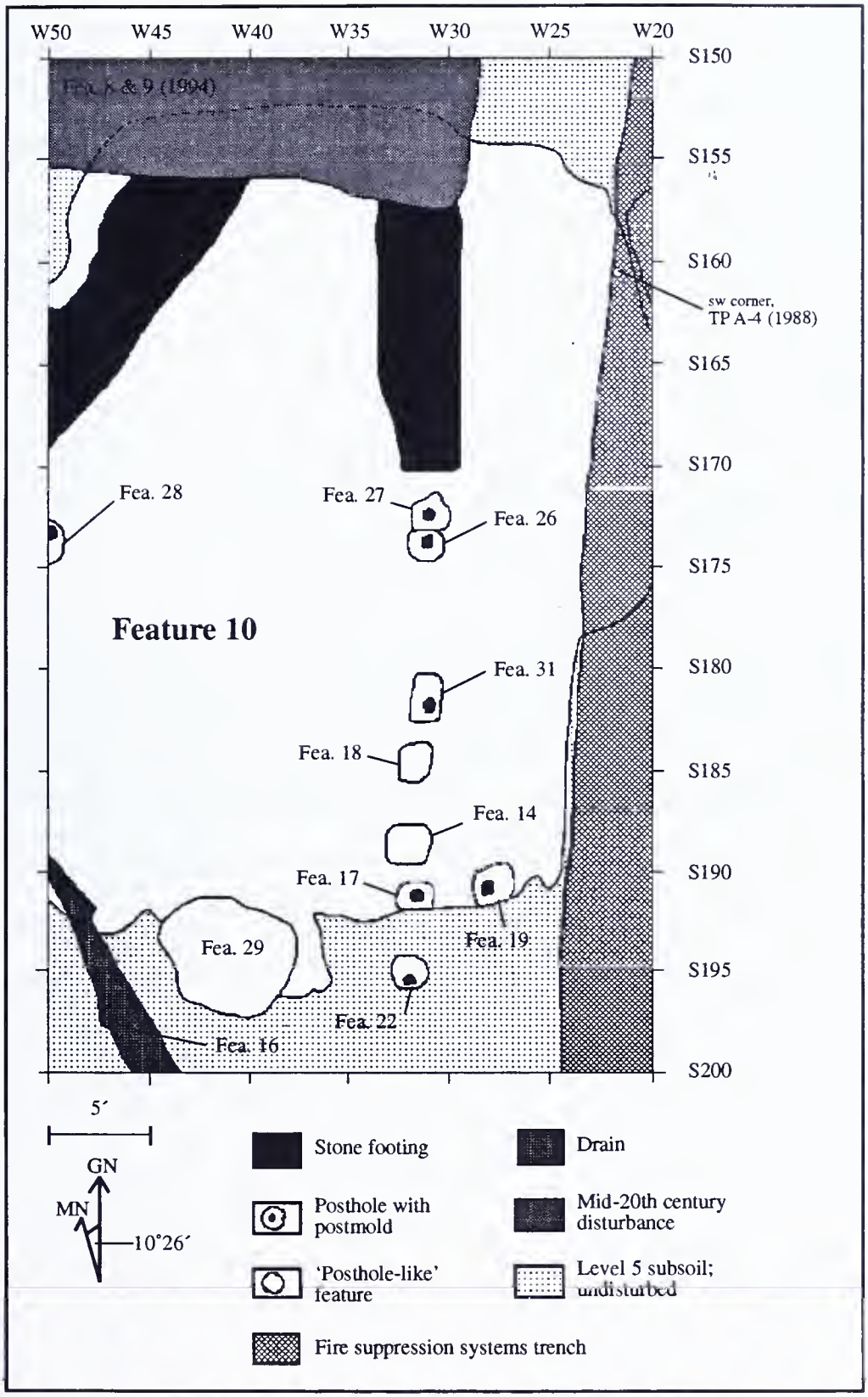


Figure 2. Plan View of 1994 and 1995 excavation blocks.

accomplished by emersing soil samples, one at a time, into an Archaeon Soil Flotation Tub. Suspended organic materials were recovered in a series of nested U.S.A. Standard Testing Sieves [#10 (.0787"); #18 (.0394"); #35 (.0197"); #60 (.0098")]. Materials too dense to float were collected in nylon window screen. In all, 519 samples were processed, placed in the sun to dry, and wrapped in newspaper envelopes before being sent to a botanical specialist for analysis.

Plan view drawings were completed for each layer within each test pit. Section or profile drawings were completed for distinct features within layers and for the western and southern excavation block perimeters at the W50 and S200 grid lines respectively. Additionally, a three-foot-wide balk (unexcavated soil margin) was maintained and profiled at S180-S183 grid lines until all cultural deposits were removed. Before the field season concluded, the balk was excavated in the same manner as surrounding test units.

Standard documentation included periodic photography using black-and-white negative and color transparency films, daily journals maintained by the author and excavation crew members, and numerous specially designed recording sheets, providing a permanent record of observations and site excavation.

Artifacts were cleaned, cataloged, and inventoried according to standard archaeological procedures. The artifact collection, field records, daily journals, and photographs are curated at The State Museum of Pennsylvania, Harrisburg, and are available for use by researchers upon written request.

Figure 3. Excavation team using three-inch pegs to control removal of Feature 10 fill.

Excavation Findings

Surface Fill Layers and Plow Zone

Directly under the sod (Level 1), two layers of fill, extending south to the S182 grid line were encountered. Both were first recorded during the 1994 field season and labeled Levels 2 and 3. Consistent with 1994 analyses, artifacts recovered from the layers had been deposited during the middle of this century, after the Commonwealth assumed ownership of Cloister property. Roofing paper, asphalt shingles, plaster, and brick indicate the fill resulted from demolition of appendages to standing structures removed during restoration. Although artifact rich (n=4622 objects), the layers were excavated and screened as a single unit in order to reserve sufficient investigation time for the undisturbed 18th-century deposit below.

A plow zone, partially buried where Levels 2 and 3 were present, blanketed the entire excavation block. The 1994 designation, Level 4, was retained for the 9"-12+" former land surface which appears as a plowed field in pre-1941 Cloister photographs. Further evidence of agricultural usage included discrete plow scars running east to west across the site. Because the layer was so thick and known to have been jumbled by plowing, it was removed with shovels and screened. In all, 11,465 artifacts representing a broad range of 18th-, 19th- and 20th-century activities were recovered from Level 4.

Two disturbances, designated Features 12 and 13, were identified in the plow zone in Test Pits 33 and 36 respectively. Both were circular (11"-12" diameter) and 10"-14" deep. Ephrata Cloister staff interpreted these modern intrusions to be postholes associated with the Print Shop garden fence that once encompassed the excavation area.

Complete removal of the plow zone exposed both Feature 10, an 18th-century deposit partially investigated in 1994, and undisturbed subsoil. The subsoil was designated Level 5 and consisted of a visually distinct yellowish brown clay loam. Because it had never been disturbed by human occupation, archaeological investigation halted wherever Level 5 appeared.

Feature 10: An 18th-Century Deposit

As a result of 1994 excavations, numerous questions were raised about Feature 10, its various soil layers, and associated stone foundation footings. Was the borrow pit completely filled before the structure was built over it? Was there a functional relationship between the Yellow and Orange Clay Fill layers which seemed to be intentionally placed under the eastern and western footings respectively? Could the structure be the Kedar, the first communal building erected in 1735 and the only large historic-period dormitory to remain undiscovered? If so, does its position in the community plan provide a key to understanding the location and orientation of later communal structures? If it is not the Kedar, what other large building would have been present at such a central place? Why is it not accounted for in the historic record?

Due to the layout of the 1995 excavation block, only the extent of the eastern footing could be determined. As described in the methods section above, Feature 10, Level 1 was removed in three-inch increments within grid squares until the next distinct soil level was encountered. Because underlying soils in the deposit were not uniform in depth, more Level 1 increments were recorded and excavated from some test pits than from others.

Feature 10, Level 1 generally consisted of a 6"-15" yellowish brown clay loam with notable reddish hues. The first two three-inch increments (0"-3" and 3"-6") were also distinguished by the presence of intermittent fine-gravel lenses which did not characterize other increments. It was immediately apparent that the first incre-

Figure 4. Posthole footprint of structure.

ment partially covered the tabular limestone footing present in Test Pits 26 and 27. The footing was not entirely exposed until the arbitrary soil level was completely excavated. Ironically, all but the southernmost four inches of the footing were located in the 1994 excavation block! Excavation of the second three-inch increment (3"-6") further revealed an intentionally dug drain (Feature 16) and several postholes (see Figure 2). Importantly, removal of the 3"-6" increment also exposed the next distinctive underlying soil layer where these features were discovered.

Each posthole (from north to south: Features 27, 26, 31, 17, and 19) contained a postmold, the relatively soft or loose organic remains of a wooden post, which averaged seven inches square in size. Most of the molds were lined with pieces of tabular limestone, a convention commonly observed on Colonial Period archaeological sites. Inserted alongside the posts, the stones functioned as wedges or shims. Postholes were invariably cut larger than needed, permitting post adjustment and alignment. All were in perfect alignment with the stone footing and compose the partial footprint of a large structure (Figure 4). Because Features 22 and 19 do not form an outside corner, it is expected that other elements of the structure lie in the yard south and east of the present excavation block.

Feature 28 (see Figure 2), discovered along the west perimeter of the excavation block in Test Pit 30, also appeared upon removal of Feature 10, Level 1 fill. Identified as a posthole with postmold, it was not well defined and did not appear in the profile when scraped and drawn. It may be associated with and represent extension to the nearby diagonal (western) footing. Investigations in 1996 will further explore its relationship to the complex of structural remains present in the deposit.

Features 14 and 18 (see Figure 2) are difficult to explain. Both were initially interpreted to be postholes because of comparable shapes and position. Yet neither contained postmolds, nor were they observed at the surface of the next underlying soil horizon. Instead, each appeared during removal of the 0"-3" and 3"-6" increments. Therefore, they represent holes dug into Feature 10, Level 1 soils rather

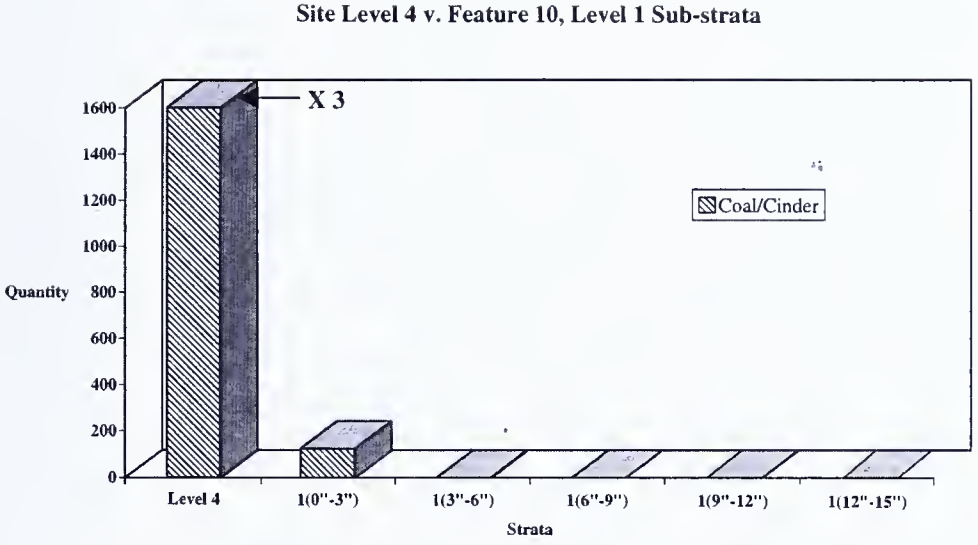


Figure 5. The occurrence of coal/cinder in Site Level 4 and Feature 10 sub-strata.

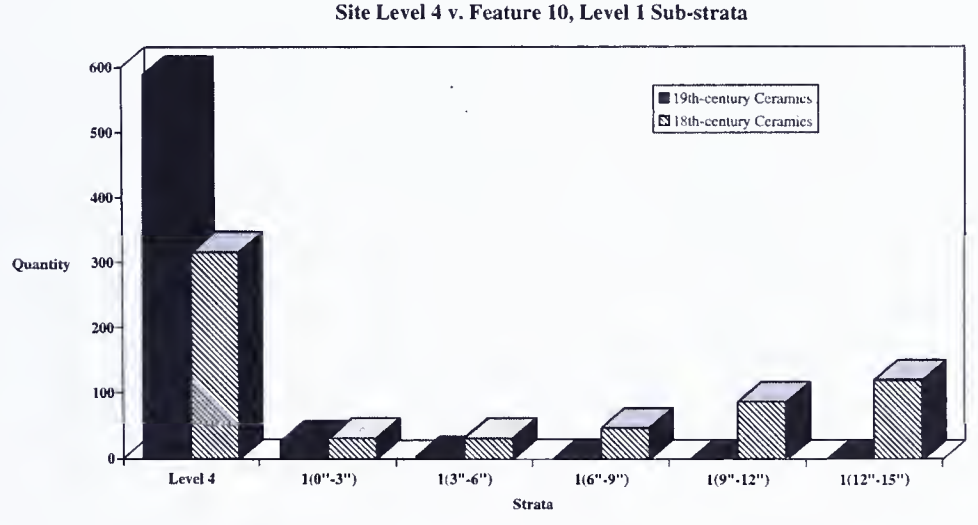


Figure 6. The occurrence of 18th-and 19th-century datable ceramics in Site Level 4 and Feature 10 sub-strata.

than holes capped by the soils, as were the other postholes. Excavation of the fill from Features 14 and 18 did not reveal contents suggesting their original purpose.

As illustrated in (Figures 5 and 6), the 0"-3" and 3"-6" increments of Feature 10, Level 1 have two other distinguishing characteristics -- both contain pieces of coal and pearlware, artifacts attributed to the early 19th-century. One hundred and twenty-seven pieces of coal were recovered from the 0"-3" increment; two pieces were found in the 3"-6" increment. Likewise, twenty-seven pearlware sherds were recovered from the first three-inch increment, whereas four were found in the second. The occurrence of these artifacts addresses several questions raised by the 1994 analysis.

By removing the first layer of the deposit

Figure 7. Reconstructed ceramic vessels from Feature 10.

in three-inch increments, it is evident that 19th-century artifacts are not mixed throughout. They occur only at the top of the layer. Although it is possible that some small fragments of each artifact type drifted into the soil layer from the plow zone above, it is not likely that all recovered coal and pearlware can be attributed to this process. Furthermore, it is apparent that Feature 10, Level 1 consists of two sub-layers. The uppermost terminates between 3" to 6" from the surface of the deposit, the greatest depth at which coal and pearlware sherds were found. The second reaches to the depth of the next visually distinct layer.

Both sub-layers, 0"-6" and 6"-15", appear to have been thrown into the deposit at about the same time. Reconstruction of ceramic vessels (Figure 7) from thousands of sherds found in the layers indicates that pieces of the same vessels are found in both. Hence, the two sub-layers consist of refuse removed from the same place on the property and are very close in age, if not contemporaneous. Because pearlware ceramic varieties found in the 0"-6" levels were not produced until after 1780, the structure must have stood until at least that date. It is noteworthy that the average ceramic date calculated for the overlying plow zone excavated during the 1994 and 1995 field seasons is 1802. If the structure was occupied well into the 1800s, the average ceramic date would be considerably later. Therefore, we can safely reason that the structure was abandoned and razed early in the 19th-century. It is probably no coincidence that this type of landscape modification occurred at a time when solitary orders were nearly defunct and administration of the Cloister was transferred to married householders, who incorporated as the Society of Seventh Day Baptists of Ephrata in 1814.

Having established that Feature 10, Level 1 fill was not dumped into the deposit until after the structure was razed, we must examine artifacts recovered from underlying fill layers to determine the approximate date of the building's construction. (Figure 8), a profile of the deposit at the S180 grid line, and (Figure 9), a profile of the excavation block's western perimeter at the W50 grid line,

identify Yellow Clay Fill, Level 1/2 Interface, Orange Clay Fill, Level 2, and Level 2A as layers likely to yield such clues. A brief discussion of each and its contents follows.

Yellow Clay Fill

The Yellow Clay Fill soil horizon was observed in association with the easternmost stone footing in 1994. It was not a continuous layer which extended across the entire deposit, but rather appeared as a bed, applied under and alongside the footing. In the present excavation block the clay fill layer was documented well beyond the southern terminus of the footing. Postholes 27, 26, and 31 were each dug into it. It was also spread to the west of the footing, extending into Test Pits 28 and 34. Numerous erosion gullies were observed on its surface, indicating the layer was not immediately covered after being dumped into the Feature 10 depression.

Unlike Level 1 fill above, which contained a large quantity of artifacts (n=9995; 75 percent from the Kitchen Group, including ceramics, glasswares, and kitchen tools/utensils), the Yellow Clay Fill yielded only 587 artifacts, of which 40 percent were from the Kitchen Group. The largest quantity of artifacts found in this fill episode were classified as elements of the Architecture Group and consist of structural demolition by-products, such as used nails, brick fragments, mortar, plaster, and window glass pieces. As in 1994, the layer yielded no datable European-made ceramic sherds, only red earthenwares.

Of particular importance is the recovery of additional sherds of a slip-decorated red earthenware

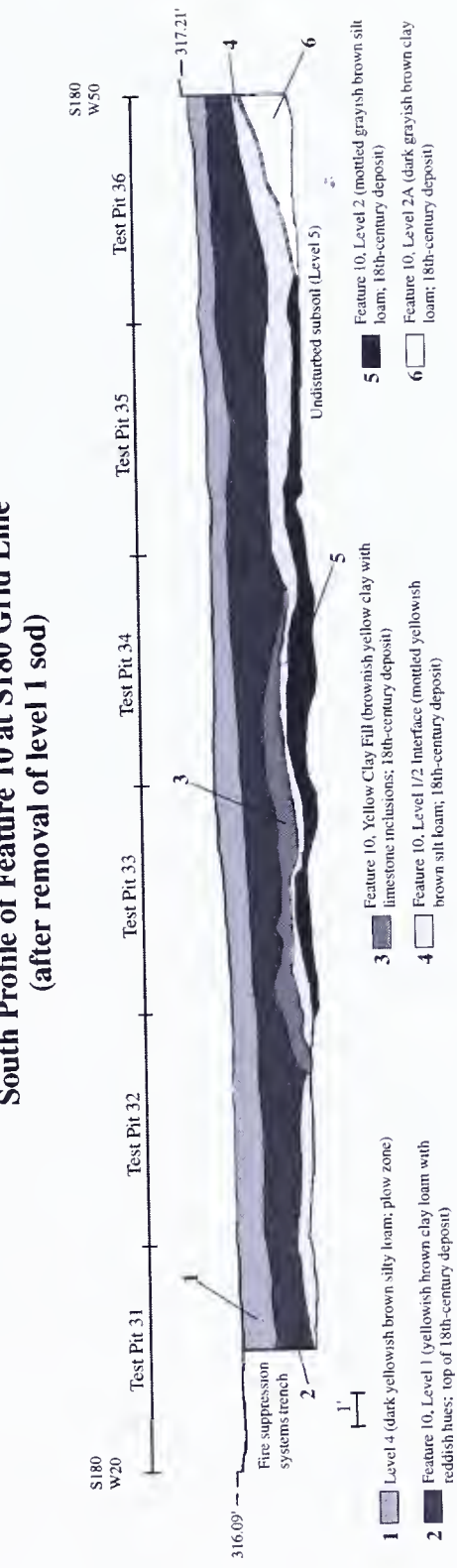


Figure 8. South profile of Feature 10 at S180 grid line.

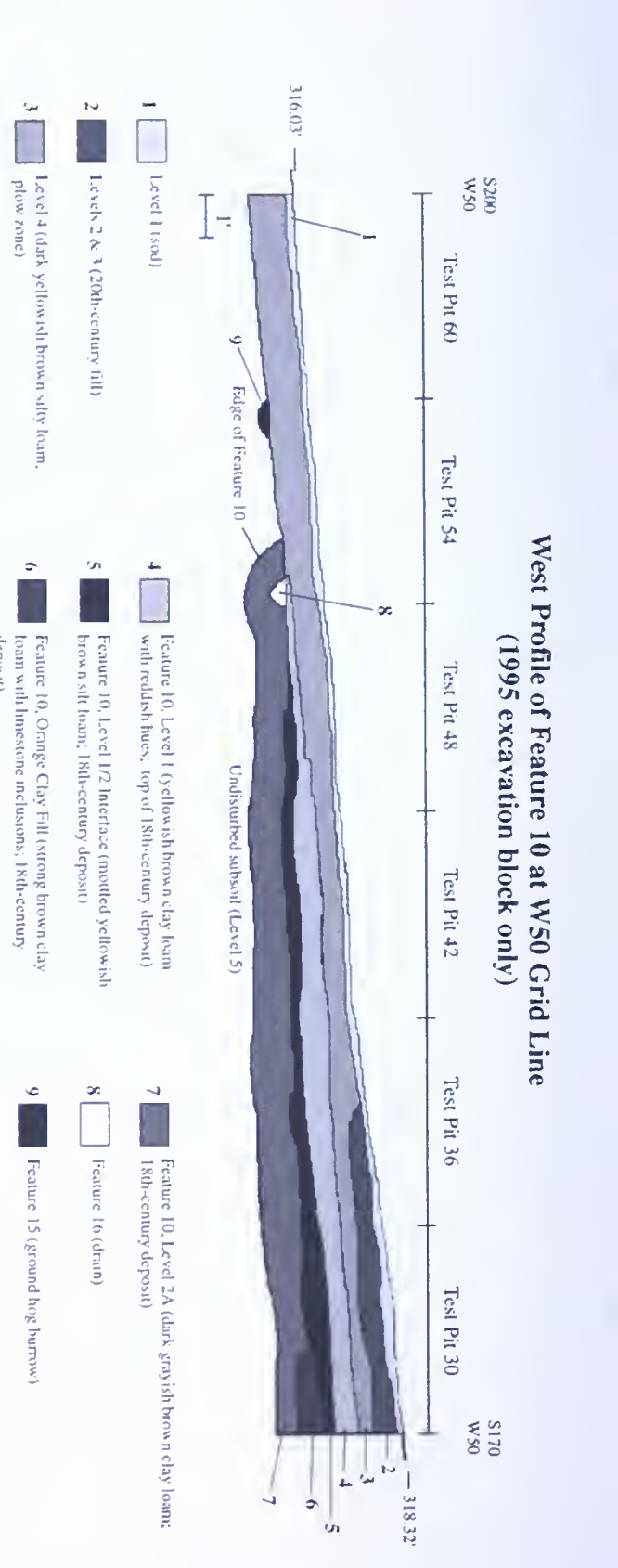


Figure 9. West profile of Feature 10 at W50 grid line.

dish bearing German script (Figure 10). The dish consists of fragments found in 1988 and 1994; it is thought to date to ca. 1760-1820 (Warfel 1995: 12). Enough of the object has now been reconstructed to permit at least a speculative translation of the script. According to Jeff Bach, it reads: "[To] have seven [large fragment missing] is better [?] than to carry stone" (personal communication, 1996). Members of the Cloister were mystics, placing significance in select numbers, directions, angles, etc. It is not yet certain if the number seven, used in this context, holds special meaning to the interpretation of this text. If the broad date range attributed to the object is correct, the building constructed over and into the Yellow Clay Fill must postdate the 1750s. Note, however, that the tradition of using German script on red earthenwares is not well documented and cannot be considered a reliable dating tool.

Level 1/2 Interface

A so-called Level 1/2 Interface soil horizon lay directly beneath the Yellow Clay Fill in much of the northern half of the 1995 excavation area. The layer, consisting of a mottled yellowish brown silt loam, was not identified

Figure 10. Slip-decorated red earthenware dish with German script.

as such in 1994, although it is now apparent that the same soil type was observed lying on top of Orange Clay Fill in the extreme southwest corner of the excavation block. Its artifact content is quite opposite that recovered from the Yellow Clay Fill. In all, 2,228 artifacts, 60 percent of which belong to the Kitchen Group, were found in the level, signifying association with former domestic activities. Datable European-made ceramic types recovered from the Interface include combed-slip earthenware (n=4), tin-glazed earthenware (n=5), and Westerwald stoneware (n=183). The Mean Ceramic Date calculation for the layer is 1735. [Mean Ceramic Date calculations are used to estimate the average date of an occupation site, feature, layer etc., and are based on the quantity of a given artifact type and its median date -- the midpoint between the times when the ceramic type was entered into and taken out of production.] The date, of course, indicates refuse in the fill layer is associated with early site habitation.

Without question, this Mean Ceramic Date is heavily influenced by the large number of Westerwald sherds, which cross-mend with others found in Feature 10, Level 1. Interestingly, Level 1/2 Interface and Level 2 below it were noted to contain gleyed soils, which are the product of intermittent waterlogging (Holzer 1981:90). Presumably, rain water stood in the Feature 10 pit for periods of time. When broken objects, such as the Westerwald crock, were thrown in as a part of Level 1 fill, they settled to or near the bottom of the pit. Although it explains a process which would permit all types of ceramic sherds to be found below the level at which they were originally dumped, this interpretation particularly applies to Westerwald stoneware, since it is more dense than earthenwares. The artifacts in this layer can only be used to

date construction of the building above it to sometime around or after 1735.

Orange Clay Fill

An Orange Clay Fill layer, a continuation of the same fill episode recorded in association with the western or diagonal stone footing in 1994, was encountered under Level 1/2 Interface in the northwest corner of the 1995 excavation block. Similar to Yellow Clay Fill, it contained relatively few artifacts (n=334). Sixty-nine percent of the objects contained within the fill were elements of the Architecture Group, including numerous brick fragments, window glass sherds, and nails. An unusual, functionally related object is a folding measuring rule, discovered in the fill. Although poorly preserved, its brass hinge with remnants of adhering wood and brass blade permit positive identification.

Also recovered was a badly corroded iron dough scraper (Figure 11). Initially interpreted to be a hoe, the object closely resembles two dough scrapers in the collections of The State Museum of Pennsylvania's Section of Community and Domestic Life. One (Cat. No. N3451/33.55.25) is attributed to the second half of the 18th-century, while the other (Cat. No. 09.2.118m) to the mid-19th-century. Because this is an artifact type which did not change quickly over time, its form is not particularly datable.

Level 2

Underlying Orange Clay Fill and Level 1/2 Interface soils is a mottled grayish brown silt loam which covered much of Feature 10's floor. Designated Level 2, the fill layer was comparable to that observed in the 1994 excavation block. It contained 334 artifacts, including combed-slip (n=1) and tin-glazed earthenware (n=1) sherds in addition to obvious structural demolition debris, such as limestone pieces with mortar, brick fragments, window glass sherds, and nails. Although not constituting a large enough ceramic assemblage to derive a reliable Mean Ceramic Date, both types were readily available in the early 18th-century.

During excavation of the fill layer near the southern edge of Feature 10, a distur-

Figure 11. Ephrata dough scraper compared with ones in The State Museum's collections.

Figure 12. Glass natural trumpet, lying *in situ*.
(Fragments from mid-section no yet exposed.)

bance was discovered and designated Feature 29 (see Figure 2). Like the main pit, it was filled with Level 2 soil and artifacts, many of which were used building materials. The feature is simply interpreted to be another location from which clay was dug, creating a crater-like depression in the subsoil.

Excavation of Level 2 also yielded the most exciting object recovered during the course of the field season. Discovered in an articulated position were fragments of a very unusual glass object (Figure 12). For several reasons, the object was interpreted upon discovery to be an apparatus used for alchemical experimentation:

- One section of glass tubing was packed with a hard dark material and a crystalline substance, similar in appearance to chemical residue.
- Jacob Martin, a householder, was known to be an alchemist and philosopher (Spohn 1986:67).
- Cloister theology contains many metaphors for alchemy (Jeff Bach, personal communication, 1995). The belief that a sinner can be transformed into a spiritual being by living an ascetic way of life is comparable to the expectation that base metals can be transmuted to precious ones.

Two avenues of inquiry were explored to determine if the object's suspected laboratory function could be verified. A letter of inquiry and photograph were sent to Dr. Lawrence Principe, Senior Lecturer in Chemistry, Johns Hopkins University, and noted scholar of alchemy. Also, the glass tube fragment with "chemical residue" and another packed with Level 2 soil (to be used as a control) were sent to the Museum Applied Science Center for Archaeology, University of Pennsylvania, for testing. Dr. Principe responded by stating that the configuration of the object did not lend itself to use in a laboratory situation. Furthermore, he was not aware of Pietist groups, such as the Cloister commune, actually participating in alchemical experimentation (Principe 1995). Consequently, he could not confirm our original hypothesis regarding the object's use.

Meanwhile, at the University of Pennsylvania great interest was shown in samples contained in tube fragments. The first

test, a Fourier-transform, diffuse-reflectance infrared analysis indicated "no organics [in the crystalline formation], but a silicate material probably derived from soil" (McGovern 1996). The second test, high-performance liquid chromatography, further determined that "the only organic material in the hard dark brown deposit is of modern humic origin" (McGovern 1996). Again, the original theory concerning the object's purpose was refuted!

The artifact was placed on exhibit at Ephrata Cloister following the 1995 field school and there, during an interdisciplinary conference on Cloister history, archaeology, and music, it was examined by an English ethnomusicologist, Guy Oldham, who claimed the object bore remarkable resemblance to a Baroque trumpet. Yet, such an interpretation seemed impossible, for the numerous musical scripts composed at the Cloister all had one trait in common -- they were intended for a cappella voices. Instrumentation was not part of the Cloister music tradition.

However, since the alchemical apparatus theory had failed, there was no choice but to explore the musical instrument hypothesis. Letters of inquiry and photographs were sent to curators of American and European glass objects, musical instruments and decorative arts, and to conservatories of music. Several responses indicated the object did resemble the form of a trumpet, but that such an instrument made from glass would be quite rare, especially given the approximate first half of the 18th-century date associated with the Level 2 deposit. Confirmation came at last from Darcy Kuronen, Keeper of Musical Instruments, Museum of Fine Arts, Boston, who wrote: "I have little doubt that the object in question is a trumpet. It [mimics] the type of so-called natural trumpet (i.e., without valves or keys to produce different notes) that was used throughout Europe and America until the early nineteenth century." He further elaborated on his determination by sending photocopies of German and Austrian natural trumpets of the 17th-and early 18th-centuries which share similar, characteristic U-shaped bends. Importantly, Kuronen noted that the artifact was probably not made for sounding (playing), since it was fragile and had no acoustic advantage over brass. On a closing note and commenting on its construction, he wrote: "I assume that such a complex pretzel shape could not have been blown in one piece" (Kuronen 1996). Yet, amazingly, that is exactly how the object was fashioned! There are no metal ferrules used to join pieces of glass; rather, a single gather was carefully blown by a highly skilled glassblower.

During recent cleaning and stabilization at the Commonwealth Conservation Center, Conservator Brian Howard noted that the crystalline material lodged in the small tube fragment and analyzed by the University of Pennsylvania may in fact be a remnant of a degraded glass mouthpiece. In 1996 excavations will explore Level 2 soils under the terminus of the eastern footing (not probed in 1994 to avoid disturbance of the masonry) for further evidence of a mouthpiece. Plans are also being made for scanning electron microscopy analysis to identify chemical elements from which the glass was made. Once known, it may be possible to ascertain whether it was crafted in the Old World or the New. According to Jane Shadel Spillman, Curator of American Glass, The Corning Museum of Glass, the artifact is probably of European origin since only a few factories (glass houses) were in operation in this country in the early 18th-century (personal communication, 1996).

Because the trumpet was found in a fully articulated position (all parts were in their correct anatomical position), special care must have attended its disposal in the refuse deposit. Had it been simply thrown in the pit, glass pieces would be more numerous and widely scattered. Reconstruction has determined that the object is complete except for a portion of the U-shaped bend near the bell. Consequently, damage likely occurred elsewhere on the site before discard. For now, however, we are left to speculate

about the role it served at Ephrata Cloister. Was it a gift to community members and used only on special occasions? Is it the embodiment of the trumpet of the Seventh Angel referenced in the Book of Revelations and pictured in Ephrata music manuscripts (Lucy Carroll, personal communication, 1996)? Was it a functional musical instrument? [Air passageways in the tube were severely constricted at both U-shaped bends by the glassblower. Playing would have been difficult, if not impossible.]

Because the artifact is so similar in form to brass natural trumpets of the 17th- and early 18th-centuries, its position in Level 2 indicates association with activities of the Cloister's formative years and suggests the structure built above could readily date to a time before the mid-18th century.

Level 2A

Level 2A, a dark, "greasy," grayish brown clay loam covered the floor of Feature 10 along the western margin of the excavation block. It is also a continuation of a fill layer observed in the 1994 excavation block along its western margin. At that time, however, such a minimal exposure was identified that it was not given a distinctive designation. The layer produced sixty-one historic-period artifacts, 38 percent of which are representatives of the Kitchen Group. No diagnostic ceramic sherds were recovered from the fill, only red earthenwares.

Prehistoric Artifacts

Numerous prehistoric artifacts (n=221) were found mixed throughout the plow zone and Feature 10 fill layers, and have not been included in artifact totals cited in fill layer discussions above. As illustrated in the following table, there is no obvious pattern associated with their distribution.

Prehistoric Artifact Distribution	
Soil Level	**Quantity**
Level 4, Plow Zone	26
Feature 10, Level 1 (0″-3″)	15
Feature 10, Level 1 (3″-6″)	10
Feature 10, Level 1 (6″-9″)	35
Feature 10, Level 1 (9″-12″)	14
Feature 10, Level 1 (12″-15″)	1
Feature 10, Yellow Clay Fill	2
Feature 10, 1/2 Interface	41
Feature 10, Orange Clay Fill	0
Feature 10, Level 2	62
Feature 10, Level 2A	15

Their appearance in the deposit is fortuitous. Soil from a nearby source was thrown into the pit to cover refuse and reduce stench from decaying organic garbage. It just so happens that the soil was borrowed from a prehistoric site! All recovered artifacts were fashioned from various stone or lithic types and include hammerstones, chipping debris (the waste from tool manufacture and maintenance), worked or used flakes, knives, scrapers, and projectile points or spear tips. Diagnostic spear tips (Figure 13) indicate the Cloister property was at least a seasonal home to Native American hunters

Figure 13. Typical Archaic Period prehistoric artifacts recovered from Feature 10.

and gatherers during the so-called Middle and Late Archaic Periods, ca. 3500-1800 B.C. This evidence is consistent with prehistoric artifacts collected elsewhere on the property.

Botanical Remains

Comparable to results of 1994 flotation analysis, no historic-period seeds or nuts were recovered from flotation samples, even though sample size was increased several fold over the preceding field season and the sampling strategy was far more sophisticated. Botanical specialist Dr. Roger Moeller attributes this to a number of factors. Unless carbonized by incidental or deliberate exposure to fire, historic seeds would not be preserved in Feature 10 due to the structure of fill soils. In fact, these soils are so coarse as to "promote the decay of [even] last year's seeds" (Moeller 1996:11)! Alternatively, fills dumped into Feature 10 may not have originated from a food-processing area where nuts and seeds were present. Although it did not contribute to a better understanding of Cloister commune food ways, flotation sample collection and analysis had the unexpected benefit of providing tightly controlled information about fill layer soil structure and feature formation. Because so many samples were water-separated through graduated sieves, the range of soil structure variation existing between and within levels was documented. According to Moeller, the range suggests nothing larger than wheelbarrow-size loads were dumped into the pit, forming the deposit (1996: 12).

Faunal Remains

A total of 636 faunal remains were recovered from Feature 10 fills, a 119 percent increase over the quantity of dietary animal bones found in Feature 10 fill layers in 1994. As illustrated in the table below, a trend is evident in their distribution throughout the deposit.

Although not a continuous decline, the amount of animal bone certainly diminishes in lower levels of the pit. In fact, the difference between Level 1 (all increments combined) and underlying fill layers is striking. As noted from other excavations on the Cloister property (see Warfel 1995, 1994), this difference may be attributed to several factors. Commune members occasionally strayed from strict observance of a prescribed vegetarian diet AND their behavior relaxed following charismatic leader Conrad Beissel's death in 1768. Also, as community members aged, many found it

difficult to sustain the discipline required for an ascetic way of life. This difference in the quantity of dietary animal bone found in soil layers dating to various periods of Cloister habitation might also be expected in other archaeological deposits on the property.

At the time of this writing a detailed analysis of the animal bone recovered in 1995 is still in progress. Therefore, it is not possible to describe the number and types of species actually present in the Cloister diet as reflected in Feature 10 refuse layers.

Distribution of Dietary Animal Bone	
Feature 10 Soil Layer	**Quantity**
Level 1 (0″-3″)	186
Level 1 (3″-6″)	157
Level 1 (6″-9″)	69
Level 1 (9″-12″)	35
Level 1 (12″-15″)	53
Yellow Clay Fill	59
Level 1/2 Interface	52
Orange Clay Fill	10
Level 2	13
Level 2A	2

Conclusions

Interpretation of the Feature 10 deposit, fill layers in the pit, and structure built over it have changed as a result of evidence collected during the 1995 field season. The present excavation collected a larger sample from the 18th-century deposit. And, as with all sampling, a larger sample produces more comprehensible and reliable results! Also, a more sophisticated excavation strategy was employed, ultimately yielding finer analytical and dating control over both artifacts and soils placed in the deposit. The use of three-inch pegs to remove increments within distinctive fill layers did not place an undue burden on either the excavation schedule or crew members previously untrained in this method of soil removal. Finally, and perhaps most important, we collected new information.

Excavation of an archaeological site is much like the assembly of a jig-saw picture puzzle. As new pieces are added, the picture becomes more intelligible. Also, the larger the puzzle, more pieces are required to see the picture. Certainly the discovery of postholes in alignment with the eastern foundation footing begins to define the shape and size of the building that once stood over Feature 10. The breadth of the footings, size of postmolds, and close interval between postholes indicate the structure was massive -- not unlike the scale of other communal buildings on the property.

Further excavation of the deposit has also determined that the borrow pit was not completely filled before the structure was erected, as concluded at the end of the 1994 excavation season. Is it possible that the building was positioned at this location to intentionally take advantage of the partially filled pit for use as a cellar? Although a construction date for the

building is still not certain, nearly all datable artifacts, recovered from soil layers through which postholes were dug, suggest it was assembled early in the 18th-century. And, without doubt, the present investigation has clearly demonstrated that the structure was razed sometime in the early 19th-century, before being capped by Feature 10, Level 1 fill.

Contrary to earlier interpretation, we cannot eliminate the possibility that the discovered structure is the Kedar! The Kedar was the first communal structure built at the Cloister. Shortly after its construction, a prayer house called the Bethaus and a dwelling house for Beissel were erected (Lamech and Agrippa 1786: 79). The Bethaus was torn down only three years after its completion, supposedly because it was tainted by illicit sexual affairs (see Ernst 1963: 141). Although Kedar was occupied well into the third quarter of the 18th-century by members of solitary orders, there is no reliable record of where it stood or when it was abandoned and razed. The central location of these remains and reasonable proximity to fresh water springs and the Cocalico Creek, around which solitary cabins were built when the Cloister community was founded, are all consistent with traits expected to characterize the Kedar's setting. Is it mere coincidence that the Mean Ceramic Date calculated for the Level 1/2 Interface layer which lies under the footing is 1735, the date of Kedar's construction? Or, is it possible that the discovered remains are those of the Bethaus which adjoined the Kedar? Only complete excavation of Feature 10 and identification of all associated structural elements lying outside of the deposit, planned for the 1996 excavation season, will provide the answer to this question.

The significance of finding the Kedar cannot be overstated. As the first large building and "anchor" for the village plan that developed around it, the Kedar's location and orientation potentially provide a key to comprehending the role mysticism played in the architectural arrangement of the community. Were other buildings constructed at mystical angles and distances to the Kedar, as suggested by some historians (see Ernst 1963: 190)? If so, can we reconstruct thought patterns of the community's builders by analyzing relationships between surviving structures and architectural ruins discovered in the archaeological record of the site? As eminent archaeologist James Deetz has observed: "Artifacts are [more than] man-made objects; they are also fossilized ideas" (1967: 45).

Excavation of a larger sample of the Feature 10 deposit has exposed another trait which characterizes the Cloister commune -- conservatism. Reconstruction of numerous ceramic vessels over the past two years has revealed pottery types which are far more conservative and often older than expected. This is particularly true of red earthenware ceramics which constitute the bulk of the pottery assemblage. Due to the austere nature of commune members and their attempt to abandon "worldly ways," antique forms, such as that illustrated in Figure 14, appear with regularity. Frugality is manifested in the discovery of several vessels with intentional mending holes, drilled on both sides of fractures to receive binding material for repair (Figure 15). Also, European-made pottery dating to the 17th-and early 18th-centuries often constitutes the majority of a ceramic assemblage recovered from a late 18th- or early 19th-century fill episode, such as Feature 10 Level 1. Commune members clung to older styles and were not prone to adopt new ones when they appeared. At Ephrata Cloister the archaeologist must exercise caution when relying on datable ceramic sherds, in lieu of coins and other diagnostic objects, to interpret when fill layers were dumped into a pit, date structural remains, etc., so as not to underestimate the chronology of events.

Certainly the original function of the Feature 10 pit is better understood as a result of the present project. Visible tool marks and scars in the subsoil floor of the feature were carefully exposed by field school students, confirming its suspected

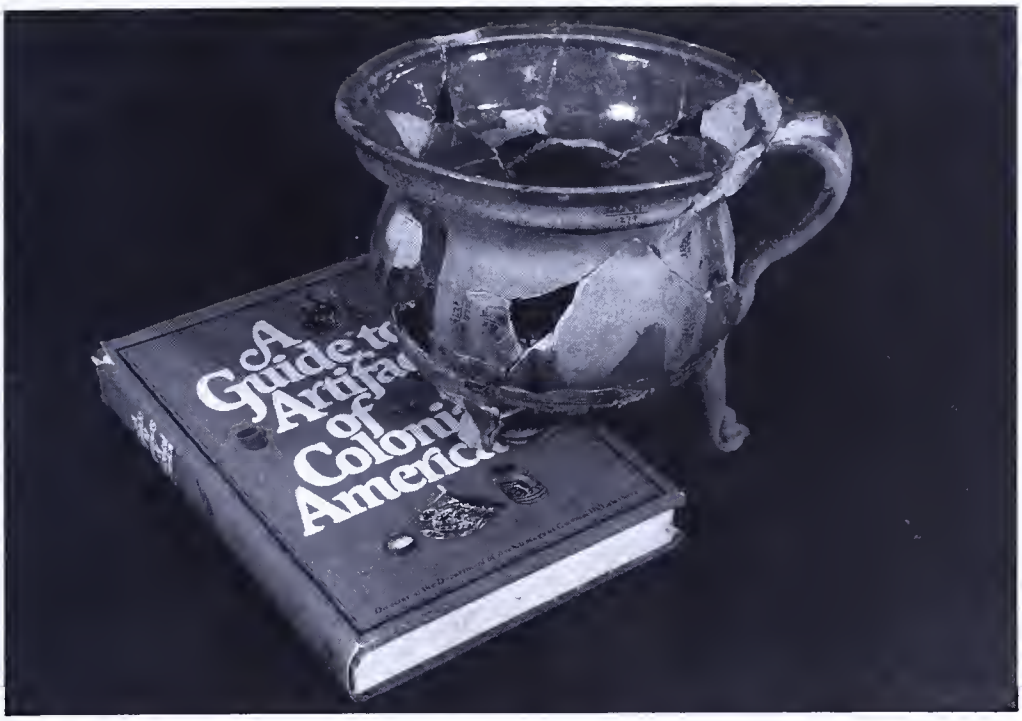


Figure 14. Three-legged cooking pot or pipkin.

Figure 15. Partially reconstructed red earthenware dish with mending holes.

use as a clay borrow pit. References to Brothers working with and "treading" clay during construction are found in primary site histories (see Sangmeister 1825: 36, 38), as are references to almost constant erection, demolition, and relocation of structures.

Finally, the significance of the artifact collection recovered from Feature 10 over the past two summers cannot be overlooked. More than 63,650 objects have been collected to date! From many fragments nearly two dozen early to mid-18th-century ceramic vessels have been reconstructed. There is no longer a need to speculate about what type of ware was used on the communal table or in the dormitory, for we now have original (albeit pieced together) pitchers, bowls, cups, storage crocks, and chamber pots. Aside from the fascination and interest such objects hold for site visitors, these collections possess tremendous scholarly research value. For example, the glass trumpet, excavated from Level 2, is currently judged by musical instrument and glass curators to be one-of-a-kind in North America. Even though we may never know how it was actually used at the Cloister, it is preserved as physical evidence of high-quality glass craftsmanship and artistry achieved in the late 17th- and early 18th-centuries.

All of these finds, be they fragments of household items or structural remains, emphasize the importance of the Ephrata Cloister Archaeology Project, for they remind us that the Ephrata Cloister we see today and what has been preserved in photographs is quite different than the religious commune that flourished on the banks of the Cocalico Creek in the 18th-century. Our ability to properly interpret this important Commonwealth historic site is absolutely dependent on continued systematic, problem-oriented archaeological exploration to augment and correct, when necessary, information preserved in the site's historical record.

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